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NOTICE OF ALLOWANCE AND FEE(S) DUE

32628 7590 12/27/2010

KANESAKA BERNER AND PARTNERS LLP
1700 DIAGONAL RD
SUITE 310
ALEXANDRIA, VA 22314-2848

EXAMINER

BARROW, AMANDA J

ART UNIT

PAPER NUMBER

1729

DATE MAILED: 12/27/2010

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/594,711

09/28/2006

Ryoichi Okuyama

KPO-005

3539

TITLE OF INVENTION: HYDROGEN SUPPLY SYSTEM

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	03/28/2011

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

32628 7590 12/27/2010

KANESAKA BERNER AND PARTNERS LLP
1700 DIAGONAL RD
SUITE 310
ALEXANDRIA, VA 22314-2848

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/594,711	09/28/2006	Ryoichi Okuyama	KPO-005	3539

TITLE OF INVENTION: HYDROGEN SUPPLY SYSTEM

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	03/28/2011

EXAMINER	ART UNIT	CLASS-SUBCLASS
BARROW, AMANDA J	1729	429-416000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY AND STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/594,711	09/28/2006	Ryoichi Okuyama	KPO-005	3539
32628	7590	12/27/2010	EXAMINER	
KANESAKA BERNER AND PARTNERS LLP 1700 DIAGONAL RD SUITE 310 ALEXANDRIA, VA 22314-2848			BARROW, AMANDA J	
			ART UNIT	PAPER NUMBER
			1729	
DATE MAILED: 12/27/2010				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 842 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 842 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	10/594,711	OKUYAMA ET AL.	
	Examiner	Art Unit	
	AMANDA BARROW	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 10/4/2010.
2. ☒ The allowed claim(s) is/are 48, 50-52, 54-64, 67, 69, 71 and 72.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date <u>10/4/2010</u> 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____. |
|--|---|

/AMANDA BARROW/
Examiner, Art Unit 1795

Art Unit: 1795

DETAILED ACTION

Status of Application

1. The Applicant's amendment filed on 10/4/2010 was received. Claim 48 was amended. Claims 49, 53, 66, 68, 70 and 73-79 have been cancelled.

2. The texts of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action issued on 7/1/2010.

Examiner's Amendment

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Manabu Kanesaka on 12/9/2010 and confirmed via fax on 12/9/2010.

4. The application has been amended as follows:

Please amend claim 48 to read:

A hydrogen supply system comprising:

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at least hydrogen supply means for supplying hydrogen to hydrogen storing means and a hydrogen generating device producing hydrogen containing gas to be supplied to the hydrogen supply means,

wherein the hydrogen generating device produces the hydrogen containing gas by decomposing a fuel containing an organic compound and comprises a partition membrane, a fuel electrode provided on one surface of the partition membrane for generating hydrogen containing gas, means for supplying a fuel containing the organic compound and water to the fuel electrode, an oxidizing electrode provided on the other surface of the partition membrane, means for supplying an oxidizing agent to the oxidizing electrode, and means for collecting the hydrogen containing gas directly from the fuel electrode, and

wherein an operation temperature of the hydrogen generating device is not higher than 100°C.

Please amend claim 50 to read:

A hydrogen supply system comprising at least hydrogen supply means for supplying hydrogen to hydrogen storing means and a hydrogen generating device producing hydrogen containing gas to be supplied to the hydrogen supply means,

wherein the hydrogen generating device produces the hydrogen containing gas by decomposing a fuel containing an organic compound and comprises a partition membrane, a fuel electrode provided on one surface of the partition membrane, means for supplying a fuel containing the organic compound and water to the fuel electrode, an oxidizing electrode provided on the other surface of the partition membrane, means for supplying an oxidizing agent to the

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oxidizing electrode, and means for collecting the hydrogen containing gas from the fuel electrode,

wherein the hydrogen generating device is an open circuit having neither means for withdrawing electric energy to outside from a hydrogen generating cell constituting the hydrogen generating device, nor means for providing electric energy from outside to the hydrogen generating cell, and

wherein an operation temperature of the hydrogen generating device is not higher than 100°C.

Delete claim 65.

Claim Rejections - 35 USC § 112

5. The claim rejections under 35 U.S.C. 112, first paragraph, on claims 51, 56 and 57 are withdrawn because the claims have been amended or cancelled.

Claim Rejections - 35 USC § 102

6. The claim rejections under 35 U.S.C. 102(b) as being anticipated by Kosek et al. (US 2003/0062268) on claims 48, 52, 67, 69 and 72 are withdrawn as the claims have been amended or cancelled.

Claim Rejections - 35 USC § 103

7. The claim rejections under 35 U.S.C. 103(a) as being unpatentable over Kosek et al. (US 2003/0062268) in view of "Chemical Reaction," Online Britannica Encyclopedia on claims 54-56, 58 and 65 are withdrawn as the claims have been amended or cancelled.

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The claim rejections under 35 U.S.C. 103(a) as being unpatentable over Kosek et al. (US 2003/0062268) in view of "Chemical Reaction," Online Britannica Encyclopedia and Lehmann et al. (US 2002/0036147) on claim 71 is withdrawn as the claims have been amended or cancelled.

The claim rejections under 35 U.S.C. 103(a) as being unpatentable over Kosek et al. (US 2003/0062268) in view of Kenet et al. (US 2003/0132097), Allen (US 2003/0205482) and Yao (US 4,846, 950) on claims 59-64 are withdrawn because the claims have been amended or cancelled.

Allowable Subject Matter

8. Claims 48, 50-52, 54-64, 67, 69, 71 and 72 are allowed. The following is a statement of reasons for the indication of allowable subject matter: the prior art does not teach a hydrogen supply system comprising: at least hydrogen supply means for supplying hydrogen to hydrogen storing means and a hydrogen generating device producing hydrogen containing gas to be supplied to the hydrogen supply means, wherein the hydrogen generating device produces the hydrogen containing gas by decomposing a fuel containing an organic compound and comprises a partition membrane, a fuel electrode provided on one surface of the partition membrane for generating hydrogen containing gas, means for supplying a fuel containing the organic compound and water to the fuel electrode, an oxidizing electrode provided on the other surface of the partition membrane, means for supplying an oxidizing agent to the oxidizing electrode, and means for collecting the hydrogen containing gas directly from the fuel electrode, and wherein an operation temperature of the hydrogen generating device is not higher than 100°C (independent claim 48); nor does the prior art teach a hydrogen supply system comprising at

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least hydrogen supply means for supplying hydrogen to hydrogen storing means and a hydrogen generating device producing hydrogen containing gas to be supplied to the hydrogen supply means, wherein the hydrogen generating device produces the hydrogen containing gas by decomposing a fuel containing an organic compound and comprises a partition membrane, a fuel electrode provided on one surface of the partition membrane, means for supplying a fuel containing the organic compound and water to the fuel electrode, an oxidizing electrode provided on the other surface of the partition membrane, means for supplying an oxidizing agent to the oxidizing electrode, and means for collecting the hydrogen containing gas from the fuel electrode, wherein the hydrogen generating device is an open circuit having neither means for withdrawing electric energy to outside from a hydrogen generating cell constituting the hydrogen generating device, nor means for providing electric energy from outside to the hydrogen generating cell, and wherein an operation temperature of the hydrogen generating device is not higher than 100°C (independent claim 50).

The closest art found by the Examiner, Ye et al., “Electrochemical Reactions in a DMFC under Open-Circuit Conditions,” *Electrochemical and Solid-State Letters*, 8 (1) A52-A54 (2005), discloses the use of membrane electrode assembly having two electrodes (i.e., anode/fuel electrode and cathode/oxidant electrode) sandwiching a Nafion membrane (“partition membrane”) which are provided two channels formed on both the cathode and anode side for delivering oxygen and methanol (“fuel containing an organic compound”), respectively (Experimental section). The cell (“hydrogen generating device”) is maintained under open-circuit conditions and the evolution of hydrogen gas is observed which was collected from the

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anode (pg. A52, column 1, third paragraph and pg. A54, column 1, paragraph 1). Applicant has perfected their foreign priority thus overcoming this reference.

The closest prior art found by the Examiner in an updated search is EP 0,438,902 by Thomas Cable. EP '902 discloses as illustrated in Figure 1 an electrochemical reactor with a first zone 2 ("oxidizing electrode") into which oxygen-containing feed gas is fed and second zone 3 ("fuel electrode") into which an oxygen-consuming gas such as methane or natural gas is introduced with steam ("organic compound and water") (page 5, line 47 through page 6, line 14 and page 15, lines 11-13). Exit port 14 allows the reacted gases which have been reacted from natural gas or a hydrocarbon to form hydrogen to be collected directly from the second zone 3 ("fuel electrode") (page 4, lines 14-23). Furthermore, an electric circuit for withdrawing/providing energy is only an optional component and is not a necessary entity to the invention-see page 14, lines 41-43. However, EP '902 discloses that the minimum temperature of the electrochemical reactor is 300 °C (page 15, lines 49-50) whereas the amended independent claims of the present application limits the hydrogen supply system to an operation temperature of not higher than 100 °C. This amendment overcomes EP '902 and places the case in condition for allowance.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AMANDA BARROW whose telephone number is (571)270-7867. The examiner can normally be reached on 7:30am-5pm EST. Monday-Friday, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on 571-272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/AMANDA BARROW/
Examiner, Art Unit 1729

/Dah-Wei D. Yuan/
Supervisory Patent Examiner, Art Unit 1727